S. bombi was found parasitizing queens of *B. vosnesenskii* near the Guadalupe Canyon Road in San Bruno and at Lake Merced in San Francisco. The incidence of parasitism was low (about 3–5%) and the number of parasitic females varied from 1 to 4 per queen.

S. bombi was also collected from queens of *B. occidentalis* in San Francisco. The incidence of parasitism was low (1–3%) and the number of parasites per host ranged from 1 to 3. The nematode was not recovered from queens of *B. edwardsii.*

The incidence of parasitism of *S. bombi* was relatively low, especially when compared to the infection rate in some parts of Europe, and probably varies considerably depending on the locality and annual rainfall. The latter is undoubtedly an important aspect in determining the range of this parasite since queen bumblebees are infected during their hibernation period (Poinar & van der Laan, 1972, ibid.) and a certain amount of soil moisture is essential for nematode survival and host penetration. Therefore a lower incidence of parasitism would be expected in the arid western states. It is probable that *S. bombi* can persist only in certain localities where the climate is modified and meets the requirements of the parasite. Inquiry of other scientists working with bumblebees on the West Coast failed to confirm the presence of *S. bombi* in native *Bombus* species. W. P. Stephen of Oregon (1972, personal correspondence) stated "We have yet to find any evidence of *Sphaerularia* in the 100s of nonreproductive queens that we have dissected." Similar results were reported by R. W. Thorp of California (1972, personal communication).

It is interesting that *S. bombi* has also been collected from *B. terrestris* in South Island, New Zealand (MacFarlane, 1973, personal correspondence). *Bombus* was originally introduced into New Zealand from Europe. This is the only case known to the author of *S. bombi* in the Southern hemisphere.

The author is indebted to Bernd Heinrich of this Division for his interest in the project and for collecting many of the infected bumblebees. Grateful appreciation is also extended to Robbin W. Thorpe, Division of Entomology, University of California, Davis for determination of *Bombus* species and to Paul Koski for additional collecting.—GEORGE O. POINAR, JR., *Division of Entomology and Parasitology, University of California, Berkeley, California.*

A simple emergence trap for small insects.—This trap was designed to catch biting midges (Ceratopogonidae) as the imagines emerge from puparia in the mud where the larvae live. Since it is simple and cheap to construct, and easy to operate, it could also be used with slight modifications for similar purposes in other kinds of research.

Each trap assembly consists of a square metal box, the pre-trap, with a pair of round openings at diagonally opposed corners leading to two glass vials, the traps proper. The pre-trap that we use is constructed of sheet metal (painted or galvanized), 50 × 50 cm square with sides 15 cm high, open below and closed over the top. In order to take the traps proper, the holes in the top

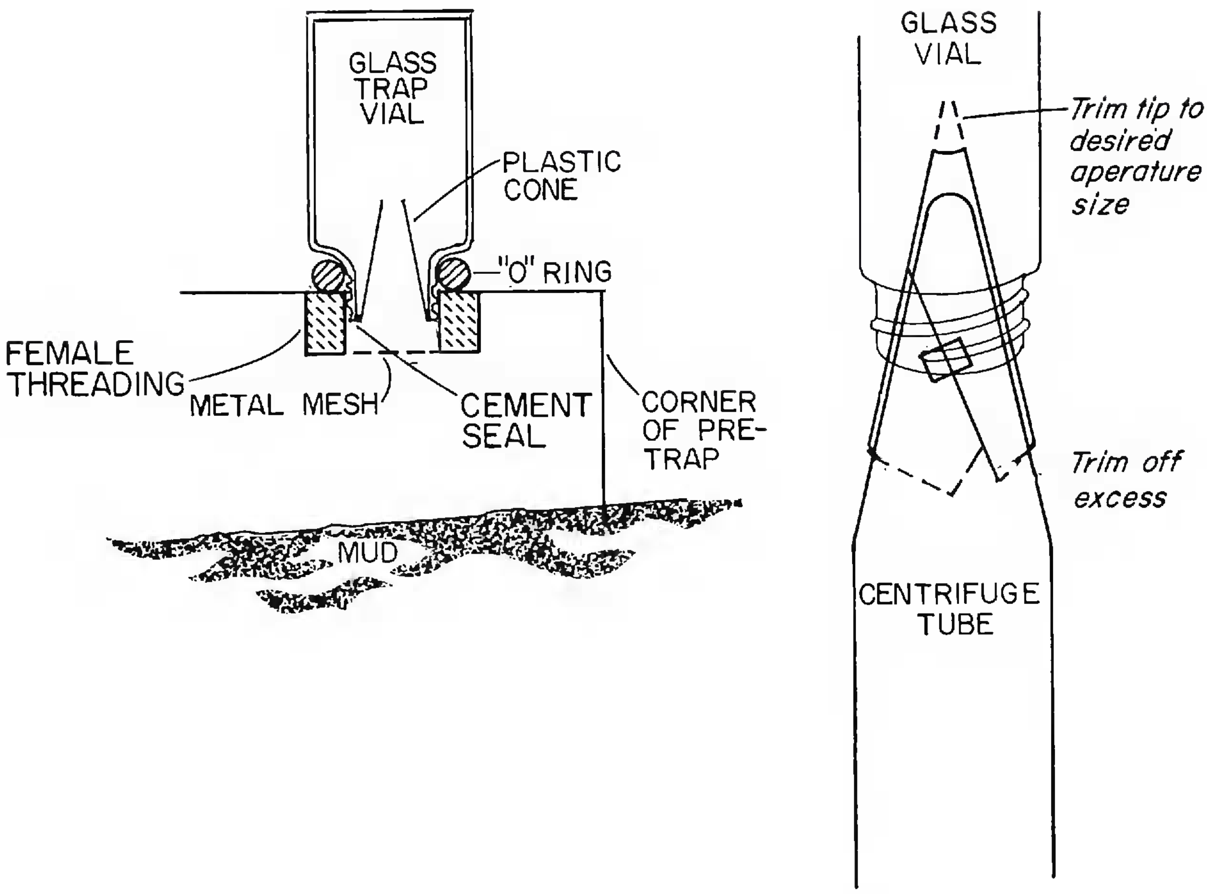

FIG. 1. Details of emergence trap described in text. Left, corner of pre-trap with trap vial *in situ*. Right, construction of polyethylene cone.

are provided with female threading by inserting the cylindrical parts of ordinary plastic screw-caps (with the tops sawn off) glued in place with epoxy resin. Into these we screw glass vials 2.5 cm wide × 5 cm long (fig. 1). A coarse-mesh metal screen covers the mouth of each opening, excluding animals such as snails and crabs from blocking the entrance. Each glass trap is converted into a sort of minature lobster pot by an internal cone made of paper-thin polyethylene plastic. Squares 4 × 4 cm of such sheeting are wrapped around a conical mold—a plastic 40-ml centrifuge tube with a narrowly tapered base serves us well—and adjusted so that a hole 1–2 mm in diameter remains open at its apical end. The plastic overlap is then secured with a 1–2 cm piece of cellotape (we use "Scotch magic" tape). While still on the mold, the cone is cut to size by setting over it one of the glass vials to be used as traps, and trimming off the excess plastic sheeting with a razor blade (fig. 1). The trimmed cone is set in the mouth of a vial, inverted, and pressed with rotation on a dish bearing a few drops of a quick-drying waterproof cement (we use "Difco"). It is then set aside for at least one or two hours to harden. Made in numbers of a dozen or two at a time, such traps can be assembled in less than 30 seconds each.

The pre-traps are set in suitable areas of mud, pressed firmly into the substratum so that no light enters at the sides. A numbered trap vial with a rubber O-ring around its neck is screwed into each opening of the pre-trap, and the assembly is now complete. Insects emerging in the area under the pre-trap fly or crawl to the naturally lighted trap openings, and pass through the mesh screen and up the cones to enter the trap vials. At suitable intervals (say, 6- or 24-hourly) we visit them, unscrew the trap vials and replace them with fresh ones. To those which on inspection contain insects we add a few milliliters of 70% ethanol to kill and preserve the catch. Tiny midges stuck in the groove between the cone and the glass can be safely rinsed out later. A cap is screwed on each vial to conserve the catch for later screening and identification. A research grant from the Foundation for Ocean Research, San Diego, is gratefully acknowledged.—LANNA CHENG, *Scripps Institute of Oceanography, University of California, La Jolla 92057.*

Insect Remains from a Prehistoric Pueblo in Arizona.—Fragments of four species of insects were recently recovered from a 13th century pueblo (NS-605) located 10 miles east of Snowflake, Arizona, at an approximate elevation of 5,750 feet in Juniper-Savanna vegetation. Species of *Eleodes* beetles have been collected from archeological sites in the Southwest before, but the other records reported and discussed below are new. The insect fragments were associated with abundant charred plant and animal material in middens of rooms 17 and 28. The associated plants (macro and micro data) are generally indigenous to the area at present; however, the data include records of Walnut, Cottonwood and Willow which are absent from the modern local flora, perhaps as the result of habitat modification and climatic change. The associated animals are also generally indigenous to the area at present; however, the data include records of Gila Sucker, Black-footed Ferret and Mohave Rattlesnake which are absent today, due, perhaps, to habitat modification and climatic change or poisoning programs. Dates by the Tree-Ring Laboratory of the University of Arizona indicate at least one phase of construction at the site around 1235 A.D. Tree-ring and Pollen data indicate that during the occupancy of this site, it was more xeric than at present.

Midden materials of NS-605 were floated, dry screened and microscopically hand picked for plant and animal remains which were then sorted for future identification. Most insect remains were too fragmentary for easy identification, but in some instances nearly entire specimens were recovered. Except for some missing appendages, almost intact specimens of *Eleodes longicollis* LeConte (Coleoptera: Tenebrionidae), *Conomyrma insana* (Buckley) (Hymenoptera: Formicidae), and *Pseudisobrachium* sp. (Hymenoptera: Bethylidae) were recovered. Fragments of an ichneumonid wasp (Hymenoptera) were also recovered. The insect parts were neither charred (natural coloring present), nor associated with stored food or excrement. They are therefore not likely to have been food items or pests of stored food. It is probable that they were intrusive into the midden materials at the time of or shortly after the deposit of refuse into these middens.

Eleodes longicollis is presently abundant throughout most of the subarid portions of southern and western Arizona. It feeds on decaying plant material and the larvae thrive in the laboratory on a mixture of peat moss and oatmeal.